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WHAT IS CLAIMED IS:

1.	A cardiopulmonary bypass catheter system for arresting	ng a patient's heart and
maintaining a	arterial circulation comprising:	

a return cannula having an elongated cannula body, a distal end adapted for positioning in a blood vessel, a proximal end, a return lumen in the cannula body adapted for flowing blood therethrough, a return outlet at the distal end in communication with the return lumen, a return inlet at the proximal end in communication with the return lumen, a catheter port at the proximal end in communication with the return lumen and adapted to removably receive a catheter therein, and a hemostasis valve in the catheter port/adapted to seal around a catheter positioned in the catheter port; and

an occlusion catheter slidably and removably positioned through the catheter port and the return lumen, the occlusion catheter having an infusion lumen with an infusion inlet and an infusion outlet, the infusion inlet being adapted for connection to a source of cardioplegic fluid, and an expandable occlusion member proximal to the infusion outlet having a collapsed configuration adapted for introduction through the return Jumen and an expanded configuration adapted for occlusion of the ascending ageta between the coronary ostia and the brachiocephalic artery;

wherein the return lumen is adapted to deliver blood when the occlusion catheter is positioned therein at a flow rate sufficient to majorain arterial circulation with the heart arrested.

- The cardiopulmonary bypass catheter system of claim 1 further comprising a 2. venting port in communication with the infusion lumen, the venting port being adapted for connection to a pump for withdrawing\fluids from the ascending aorta through the infusion lumen.
- 1 3. The cardiopulmonary bypass catheter system of claim 1 wherein the return 2 lumen is adapted to deliver blood at a flow rate of at least about 4 l/min and a pressure of less 3 than about 250 mm Hg.

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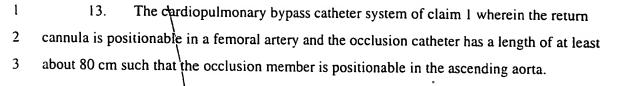
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1	4.	The cardiopulmonary bypass catheter system of claim 1 wherein the return
2	lumen has an	inner diameter of about 5-9mm.
1	5.	The cardiopulmonary bypass catheter system of claim 4 wherein the occlusion
2	catheter has a	n outer diameter of about 2-5mm.
1	6.	The card opulmonary bypass catheter system of claim 1 further comprising a
2	source of card	lioplegic fluid coupled to the infusion port.
		
1	7.	The card opulmonary bypass catheter system of claim 1 further comprising a
2	source of oxyg	genated blood coupled to the infusion port.
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1	8.	The cardiopulmonary bypass catheter system of claim 1 further comprising a
2		to the return inlet adapted for pumping oxygenated blood through the return
3	lumen.	
1	9.	The cordional money humans so have some of the control of the cont
2		The cardiopulmonary bypass catheter system of claim 8 wherein the pump is
3		np oxygenated blood through the return lumen at a rate of at least about 4 l/min.
4	return lumen.	of less than about 250 mm Hg with the occlusion catheter positioned in the
7	ictum fumen.	
1	10.	The cardiopulmonary bypass catheter system of claim I wherein the infusion
2		gured to deliver dardioplegic fluid at a rate of at least 250 ml/min at a pressure
3		oout 300 mm Hg.
1	11.	The cardiopulmonary bypass catheter system of claim 10 wherein the infusion
2	lumen has a ci	ross-sectional area of at least about 4.5 mm ² .
I	12.	The cardiopulmonary bypass catheter system of claim 1 further comprising a
2	venous cannul	a positionable in a vein and an oxygenator fluidly coupled to the venous
3		xygenator being fluidly coupled to the return inlet.



- 14. The card opulmonary bypass catheter system of claim 1 wherein the occlusion catheter has a pre-shaped distal portion configured to conform to at least a portion of the aortic arch.
- 1 15. The cardiopulmonary bypass catheter system of claim 1 wherein the occlusion catheter has a pressure lumen with a pressure outlet distal to the occlusion member and a pressure port proximal to the occlusion member adapted for connection to a pressure monitoring device.
 - 16. A cardiopulmonary bypass catheter system for arresting a patient's heart and maintaining arterial circulation comprising:

a return cannula having an elongated cannula body, a distal end adapted for positioning in a blood vessel, a proximal end, a return lumen in the cannula body adapted for flowing blood therethrough, a return outlet at the distal end in communication with the return lumen, a return inlet at the proximal end in communication with the return lumen, a catheter port at the proximal end in communication with the return lumen and adapted to removably receive a catheter therein, and a hemostasis valve in the catheter port adapted to seal around a catheter positioned in the catheter port;

an occlusion catheter slidably and removably positioned through the catheter port and the return lumen, the occlusion catheter having an infusion lumen with an infusion inlet and an infusion outlet, a venting port in communication with the infusion lumen, and an expandable occlusion member proximal to the infusion outlet having a collapsed configuration adapted for introduction through the return lumen and an expanded configuration adapted for occlusion of the ascending aorta between the coronary ostia and the brachiocephalic artery;

a return pump coupled to the return inlet and adapted for pumping oxygenated blood through the return lumen with the occursion catheter positioned therein at a flow rate sufficient to maintain arterial circulation with the heart arrested;



a source of cardioplegic fluid coupled to the infusion port; and

a venting pump coupled to the venting port for withdrawing fluids from the ascending

aorta through the infusion lumen.

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